

## 7.4 & 7.5 Logarithmic Functions

Tuesday, May 28, 2013  
9:40 AM

Basic Form:  $f(x) = a \log_b X$

$$b > 0, b \neq 1$$

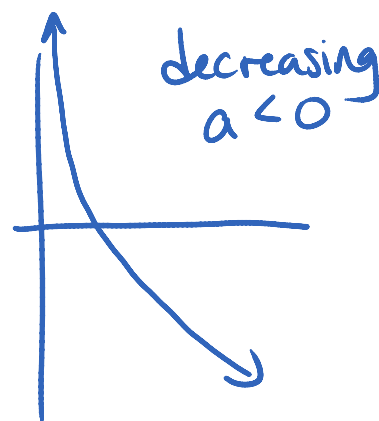
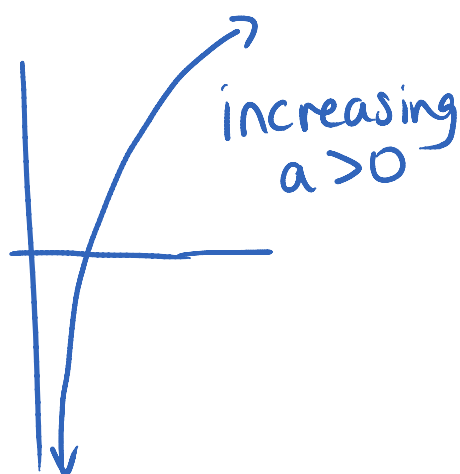
$$a \neq 0$$

$$a \text{ and } b \in \mathbb{R}$$

$$f(x) = a \ln X$$

$$\hookrightarrow \log_e X = \ln X$$

Characteristics:



value = 1    x-intercept for basic form

# = 1    x-intercepts for all log functions

# of y-intercepts = 0

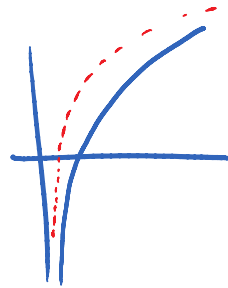
end behaviour     $QIV$  to  $QI$  (increasing)    or     $QI$  to  $QIV$  (decreasing)

domain     $x > 0, x \in \mathbb{R}$

range  $y \in \mathbb{R}$

General Form:  $y = (\overset{+2}{\text{constant}}) + (\text{multiplier}) \cdot \ln X$

↑  
moves the  
function up or  
down the y-axis



use regression program [xuru.com](http://xuru.com)  
→ give eq<sup>n</sup> in general form.